

*a* ~~I~~ Claims

1. Method for the production of brushes, consisting of a brush support and at least two different types of bristles combined into at least one group (31) having a defined cross-section and mounted to the brush support, wherein bristles of one bristle type are combined to form a partial group (27, 28) and the partial groups are combined to form the bristle group via converging guides (15) and the bristle group is subsequently mounted to the bristle support (31), characterized in that the bristles of each partial group (27, 28) are shaped in a surrounding guide (15, 16) of a shaping device (3) to obtain a cross-section corresponding to their partial cross-section in the bristle group (31) and said partial groups (27, 28) are then combined while maintaining their partial cross-section in the guides, to form the cross-section of the bristle group (31).

2. Method according to claim 1, characterized in that the partial groups (27, 28) combined to form a bristle group (31) each have a different number of bristles.

3. Method according to claim 1 or 2, characterized in that after combining the partial groups (27, 28), the bristle group (31) is transferred to a holding means (4) to transport the bristle group (31) for mounting to the bristle support.

4. Method according to claim 1 or 2, characterized in that the bristles of each partial group (27, 28) are compressed during shaping in the shaping device (3).
5. Method according to any one of claims 1 through 4, characterized in that all bristle groups of a brush bristle stock are simultaneously formed in the shaping device (3).
6. Method according to any one of claims 1 through 5, characterized in that all bristle groups of a brush bristle stock are transferred to a holding means (4), accommodating all bristle groups.
7. Method according to any one of claims 1 through 4, characterized in that all bristle groups of a brush bristle stock are sequentially formed in the shaping device (3) and are transferred to a holding means (4), accommodating all bristle groups.
8. Method according to any one of the claims 1 through 7, characterized in that the partial groups (27, 28) are combined to form a bristle group (31) with differing lengths and then transferred to the holding means (4) and cut flat at a location between the shaping device (3) and the holding means (4).

9. Method according to any one of claims 1 through 8, characterized in that the bristle groups are clamped in the holding means (4).

10. Method according to any one of claims 1 through 9, characterized in that the useful ends of the bristles of the bristle groups clamped in the holding means (4) are mechanically treated, e.g. rounded.

11. Method according to any one of claims 1 through 10, characterized in that the bristles in the holding means (4) are displaced axially with respect to one another in the unclamped state to bring the useful ends (29, 30) into differing envelope surfaces.

12. Method according to claim 11, characterized in that the bristles of one or several partial groups (27, 28) are displaced axially with respect to one another to bring the useful ends (29, 30) of said bristles into differing envelope surfaces.

13. Method according to any one of claims 1 through 12, characterized in that the ends (32) of the bristles to be fastened, which are opposite the useful ends of the bristles, are prepared in the holding means (4) for mounting to the bristle support.

14. Method according to any one of claims 1 through 13, characterized in that the partial groups (27, 28) are

maintained at close separation when combined to form a bristle group (31).

15. Method according to any one of claims 1 through 13, characterized in that the partial groups (27, 28) are tightly packed and combined to form the bristle group (31).
16. Method according to any one of claims 1 through 15, characterized in that the bristles of each partial group (27, 28) are made from endless monofilaments by accommodating bristles of the same type, in the form of cords (11, 12) of endless monofilaments, on separate spools, removing the cords of bristles of the same type from the spool and inserting them into the guides to form one partial group each, wherein the bristles of all partial groups forming a bristle group (27, 28) are simultaneously supplied to the guides.
17. Method according to any one of claims 1 through 15, characterized in that the partial groups (27, 28) are made from short-cut bristles of appropriate length.
18. Device for carrying out the method according to any one of claims 1 through 16, characterized by forming a bristle group (27, 28), consisting of at least two partial groups (27 or 28), from bristles of different types, wherein at least one spool having a cord (11, 12) of monofilaments of the same bristle type is provided for

each partial group (27 or 28), and the spools are associated with at least one downstream drawing device (1) with one guiding channel (10) for each cord, wherein the drawing device (1) has a downstream stationary shaping device (3) with a corresponding number of shaping channels (15,16) whose openings facing the drawing device (1) are aligned with the guiding channels (10) and whose cross-section changes into the partial cross-section of the partial group (27 or 28) towards the opposing opening while converging towards an envelope cross-section corresponding to the cross-section of the bristle group, wherein the cords (11,12) can be removed from the spools and pushed through the shaping device (3) via the linearly movable drawing means (1).

19. Device according to claim 18, characterized in that the shaping device (3) has a downstream moveable holding means (4) for at least one bristle group, comprising holding channels (25,26) whose shape and arrangement corresponds to the facing shaping channels (15,16) of the shaping device (3), wherein the partial groups formed in the shaping device (3) and combined in the bristle group can be transferred to the holding means (4) and with a cutting device (8) disposed between the shaping device (3) and the holding means (4) for cutting the bristle group (27,28) in the holding means to a desired length, wherein the holding means (4), with the bristle group, can be transported for mounting the bristle group to the bristle support.

20. Device according to claim 18 or 19, characterized in that the shaping channels (15,16) of the shaping device comprise a cross-sectional surface which is reduced in the direction of cross-sectional variation.

21. Device according to any one of claims 18 to 20, characterized in that at least two separately moveable drawing means (1,2) are disposed one behind the other and act, individually or collectively, on the cords (11,12) forming the partial groups (27,28) to insert the partial groups into the holding means (4) to the same or different extents.

22. Device according to any one of claims 18 to 21, characterized in that the drawing means (1,2) and the holding means (4) consist of parallel layered plates (10,13,17 or 22,23,24), one of which can be moved, as a clamping plate (13,17,24), transversely to the guiding or holding channels (10,25,26).

23. Device according to any one of claims 18 to 22, characterized in that the holding means (4), with the clamped bristle group (27,28), can be moved past devices for processing and/or for treatment of the useful ends and/or for treatment of the ends of the bristles to be fastened.

24. Device according to claim 23, characterized in that the  
bristles of the bristle group or of the partial groups  
can be displaced axially relative to one another when the  
clamping plate is released.

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